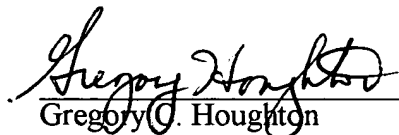




3743

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Gregory C. Houghton

#11

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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MAY 14 2003

TECHNOLOGY CENTER R3700

In re Application of
Ijiri, Y. et al.

Serial No. 09/705,351

Filed: November 3, 2000

For: VERTICAL HEAT EXCHANGER

Group Art Unit: 3743
Examiner: Atkinson, C. M.

Commissioner for Patents
Washington, D.C. 20231

SIR:

REQUEST FOR RECONSIDERATION

This response is submitted pursuant to the Office Action dated February 26, 2003, to which a response is due May 26, 2003. Claims 1, 5, 9-12 and 17 are under consideration.

Claims 1, 5, 9-17 and 17 are rejected under 35 U.S.C. §102(b) as being anticipated by Kieren. Further, the Examiner quotes *Ex parte Masham* regarding the specifically claimed fluids to be employed in the heat exchanger. As stated in *Masham* "a recitation with respect to the material intended to be worked upon by a claimed apparatus does not impose any structural limitations upon the claimed apparatus which differentiates it from a prior art apparatus satisfying the structural limitations of that claimed."

Applicants traverse because a rejection under 35 U.S.C. §102(b) is only proper when directed toward an invention that is *identically* disclosed or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States. Examiner cites Ex parte Masham, however because the present invention is not identical to that described by Kieren the issue regarding the claimed use of fluids is moot.

The present invention, as detailed in claim 1, is directed to a vertical heat exchanger that includes a vent pipe in which at least part of one end is constructed from the upper tube sheet and the other end of which is connected outside the heat exchanger to an immediately adjacent second fluid passing port passing the same fluid as the vent pipe.

Kieren describes a water heater in which a vent pipe 17 extends through the plate 14, extending down within central tube 16 and connecting with the closed upper end of cylindrical heating chamber 18 (column 2, lines 57-66, Fig. 1). Thus, vent pipe 17 of Kieren extends through plate 14 of dome head 10 but does not contact with partition 12, which corresponds with the upper tube sheet of the present invention. The fitting place of the vent pipe in Kieren is different from that of the present invention. Namely, in the present invention, the vent pipe connects with the upper end of the shell, i.e., the upper tube sheet. In contrast, the vent pipe in Kieren cannot be made of the upper tube sheet. In addition, Kieren does not teach or suggest that the other end of the vent pipe can be connected outside the heat exchanger to an immediately adjacent second fluid passing port passing the same fluid as the vent pipe, as defined by the present claims.

Also, as depicted in Fig. 2, the accumulated gas in the upper part of shell 211 can be expelled through vent pipe 206. Allowing the accumulated gas to be expelled represses the decrease in heat transfer area improving the heat transfer efficiency and preventing the corrosion that possibly arises on the gas-liquid phase boundary, as described on page 3, lines 3-12 of the present invention.

Kieren describes valved vent-pipe 17 which permits the removal of air contained within chamber 18 when necessary to enable the steam to quickly and completely fill chamber 18 (page 2, lines 52-55). The pipe permits the removal of air contained within chamber 18, but not within the shell of the present invention. Further, the object of the removal of air in Kieren is to quickly and completely fill chamber 18, but not to improve the heat transfer efficiency and to prevent corrosion on the gas-liquid phase boundary of the shell. In other words, Kieren teaches only how to fill the chamber by means of the vent pipe, so that the pipe may be disposed of (page 2, line 56). However, Kieren does not teach removing the corrosion or heat transfer efficiency problems associated with the shell of the heat transfer exchanger at all. Accordingly, Kieren does not teach or suggest the vent pipe of the present invention.

Further, the present invention is directed to a vertical heat exchanger that includes a drain pipe at least part of one end of which being made of a lower tube sheet part and the other end of which connected outside the heat exchanger to an immediately adjacent second fluid passing port passing the same fluid as the drain pipe, as described in claim 1.

Kieren describes a concave head 8 which is provided with a valved mud-draw-off pipe 9. Pipe 9 is attached to concaved head 8, but not to the lower tube sheet, as described in the present invention. The fitting place of the drain pipe in Kieren is different from that of the invention defined by the present claims. Furthermore, the vent-pipe in Kieren cannot be made of the lower tube sheet. In addition, Kieren does not teach or suggest that the other end of the drain pipe can be connected outside the heat exchanger to an immediately adjacent second fluid passing port passing the same fluid as the drain pipe (see Fig. 9 of the present invention).

In accordance with the drain pipe of the present invention, the fluid in shell 611 can be fluidized and the overall heat exchange efficiency of heat exchanger 601 can be improved, as described on page 4, lines 17-30 and in Fig. 6.

Kieren teaches that concave head 8 is provided with a valved mud-draw-off pipe 9 for the purpose of discharging the mud or other impurities (page 1, lines 40-44) that accumulate. In accordance with Kieren, the mud or other impurities are discharged from the water supply line or inlet pipe. In contrast, the present invention uses the drainpipe to discharge mud or other impurities that are introduced from the shell side inlet, all of which enhances the thermal efficiency and decreases corrosion in the heat exchanger. Thus, Kieren does not teach or suggest the advantageous effects of the present invention and Applicants respectfully request that the 35 U.S.C. §102(b) rejection be withdrawn.

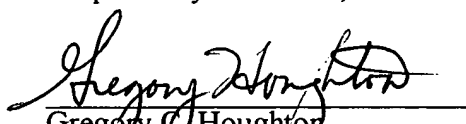
Claims 10-12 are also rejected under 35 U.S.C. §103 as being unpatentable over Kieren. The Examiner states that the device in Kieren discloses all the claimed features with the exception of the specifically claimed fluids. Further, Examiner states that it would have been obvious to one skilled in the art at the time the invention was made to have the specifically claimed fluids, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Applicants traverse the rejection with regard to Kieren for the same reasons discussed above in association with the 35 U.S.C. §102(b) rejection. Furthermore, in regard to the Examiner's comments toward the obviousness of the claimed fluids, the Examiner has not brought forth any evidence that suggests that it would have been obvious to one skilled in the art at the time the invention was made to have the specifically claimed compounds. Absent such a showing of evidence, the Examiner has impermissibly used "hindsight" by using the Applicant's teaching as a blueprint to hunt through the prior art for the claimed elements and combine them as claimed. *In re Zurko*, 111 F.3d 887, 42 USPQ2d 1476 (Fed. Cir. 1997); *In re Vaeck*, 947 F.2d 488, 20 USPQ2D 1438 (Fed. Cir. 1991). Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996).

Based on the foregoing, Applicants respectfully request that the 35 U.S.C. §103 rejection be withdrawn.

The application is now believed to be in a condition for allowance and an early notification thereof is respectfully requested. The Examiner is invited to contact the undersigned should she believe this would expedite prosecution of this application. It is believed no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,


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DATE: May 9, 2003

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